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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

In re Patent application of:

Applicant: Dieter Dohring et al.  
Serial No.: 09/647,130  
Filing Date: March 5, 2001  
Title: METHOD OF PRODUCING LAMINATE COATINGS, AND  
LAMINATE COATING  
  
Examiner: Justin R. Fischer  
Art Unit: 1733  
  
Docket No. TURKP0113US

**APPELLANT'S SECOND REPLY BRIEF**

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Sir:

This brief is submitted in reply to the Examiner's Answer dated September 8, 2005.

***New Ground of Rejection***

The Examiner has made a new ground of rejection – Claims 1, 2 and 5-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over ***Lindgren*** in view of ***Veneziale, Jr.*** and Werz U.S. Patent No. 4,153,490 (hereinafter ***Werz***). According to the Examiner, ***Lindgren*** describes the use of a "conventional" overlay in combination with a particle-treated decorative sheet in the manufacture of a decorative laminate.

The Examiner concedes that ***Lindgren*** does not disclose or suggest the use of a fibre

fleece as set forth in claim 2, but contends such use would have been obvious in view of **Veneziale** which is cited for the proposition that it is well known in the decorative lamination industry that top sheets or overlays can have a variety of forms, including fibrous webs or layers. The Examiner further contends that it is well recognized that fibre fleeces are a common form of fibrous web or layer. In this latter regard, the Examiner relies on **Werz** as evidence of the specific use of overlay paper layers and "fleeces" as protective layers for decorative laminates.

***Claims 1, 5, 6 and 8***

As will become apparent from the following remarks (as well as the remarks set forth in Appellants' main brief and first reply brief), the Examiner has not established a *prima facie* case of obviousness of claims 1, 5, 6 and 8. First, **Lindgren** does not teach the use of a conventional overlay as contended by the Examiner, but rather the use of a conventional overlay sheet.

Sometimes you can coat both the overlay paper and the decor paper with particles or use two or more such particle coated overlay papers. It is also possible to put a conventional overlay sheet, which is not coated with particles, over the particle coated sheet or sheets.

**Lindgren**, column 2, lines 31-34. The overlay sheets described by **Lindgren** are paper sheets. As discussed in Appellants' main brief, a paper sheet is not a fiber material.

Regarding the use of fiber material and more particularly fiber fleece (claim 2) the Examiner looks to **Veneziale** as evidence of the variety of well-known forms that are suitable for the top (overlay) sheet, including a mat or fibre fleece, and hence a fiber material. First it is noted that **Veneziale** is concerned with overlay layers made of fiber glass, whereas **Lindgren** makes no reference to the use of fiber glass as an overlay.

In addition, it is submitted that the skilled person would not have been motivated to modify the methodology of *Lindgren* in view of *Veneziale*. *Lindgren* recognized a need to improve the abrasion resistance of the laminates exposed to an extreme abrasion. *Lindgren* observed as follows:

It has been tried before to improve the abrasion resistance of these laminates by addition of small, hard particles for instance of aluminum oxide already at the production of the overlay paper of  $\alpha$ -cellulose. Then the particles have been spread over a layer of wet  $\alpha$ -cellulose fibers on the wire of a paper machine.

With this method, the particles are distributed more or less irregularly within the whole fibre layer. Some of these particles even pass through the wire. Thus, in the overlayer paper obtained the hard particles will be distributed in an uncontrollable way. It is impossible by this known method to get an even distribution of the hard particles on the surface of the paper, where they give the best effect against abrasion.

In other words, the laminates obtained containing such an overlay sheet will get an uneven quality regarding abrasion resistance.

*Lindgren*, column 1, lines 38-54. Recognizing the foregoing problem, *Lindgren* devised a way to avoid the above mentioned problem. As stated by *Lindgren*:

So far it has not been possible to avoid the above mentioned problem in a satisfactory way. However, according to the present invention it has quite unexpectedly been possible to solve the above problem and bring about a process for the production of a decorative thermosetting laminate with an abrasion-resistant surface layer, which laminate comprises paper sheets impregnated with a thermosetting resin. A continuous paper is then impregnated with a thermosetting resin such as melamine-formaldehyde resin. At least one side of the continuous paper is coated with 2-20 g/m<sup>2</sup>, preferably 3-12 g/m<sup>2</sup> of small, dry and hard particles evenly distributed over the whole wet surface of resin on the continuous paper. Thereafter the resin is dried and the particle coated, impregnated paper, so-called prepreg is possibly cut to sheets. At least one such sheet or continuous layer is placed as a surface layer on a base layer and bonded thereto.

*Lindgren*, column 1, line 58 through column 2, line 7. In addition, *Lindgren* taught:

The particle coated paper sheet often consists of a so-called overlay paper, preferably of  $\alpha$ -cellulose. However, instead it is also possible to apply the hard particles to the so-called decor paper.

Sometimes you can coat both the overlay paper and the decor paper with particles or use two or more such particle coated overlay papers. It is also possible to put a conventional overlay sheet, which is not coated with particles, over the particle coated sheet or sheets.

**Lindgren**, column 2, lines 26-35.

**Veneziale**, filed almost 20 years prior to **Lindgren**, has nothing to do with the problem addressed by **Lindgren**, i.e., the uneven distribution of wear-enhancing hard particles in a decorative laminate. The skilled person would not view **Veneziale** as having anything to add to the teachings of **Lindgren** in respect of the formation of a decorative laminate containing hard particles. Perhaps more importantly, **Veneziale** offers no hint that any of the other overlay materials (fiber glass in various forms) mentioned by **Veneziale** could be successfully employed in the process of **Lindgren**. There simply is lacking any suggestion or modification to modify **Lindgren** as contended by the Examiner. The only guidance arises from applicants' specification, and hindsight reliance thereon is clearly improper.

Likewise, **Werz** filed more than 10 years prior to **Lindgren**, has nothing to do with the problem addressed by **Lindgren**, i.e., the uneven distribution of wear-enhancing hard particles in a decorative laminate. The skilled person would not view **Werz** as having anything to add to the teachings of **Lindgren** in respect of the formation of a decorative laminate containing hard particles.

Perhaps more importantly, **Werz** does not teach the use of glass fiber fleece as an alternative to an overlay paper as contended by the Examiner. The pertinent passage of **Werz** reads as follows:

As the protective layer, there is usually used a clear so-called overlay paper, consisting of a non-filled alpha-cellulose paper or a glass fiber fleece, which is soaked with a thermosetting plastic material, mostly on the melamine basis. The transparent protective layer can also be

produced in such a manner that the decorative layer is provided with a thicker resin layer, such as of melamine formaldehyde resin or urea formaldehyde resin.

**Werz**, column 1, lines 55-60. **Werz** teaches the use of an overlay paper as a protective layer, which overlay paper consists of non-filled alpha-cellulose paper or a glass fiber fleece. Consequently, a required factual finding underlying the Examiner's rejection is in error. Moreover, **Werz** if anything teaches away from the subject matter of claims 1, 5, 6 and 8.

Again it is mentioned that **Lindgren** discloses a protecting layer other than a paper sheet. Such protecting layer, however, is composed of pulverized  $\alpha$ -cellulose.

According to the invention, it is possible to avoid handling overlay sheets by coating the decor sheet both with hard particles and pulverized  $\alpha$ -cellulose impregnated with thermosetting resin such as melamine-formaldehyde resin. The coating can then be applied in one step or in two separate steps. The pulverized  $\alpha$ -cellulose will form a protecting layer on top of the decor sheet.

**Lindgren**, column 2, lines 49-55. Again, there is no suggestion of using a fiber material.

Moreover, it is not at all clear from **Lindgren** how the decor sheet is to be coated with the hard particles and pulverized  $\alpha$ -cellulose impregnated with thermosetting resin. **Lindgren** states such coating can be applied in one step or in two steps, but no details are provided. Consequently there is lacking any suggestion of the steps of a) taking a wet patterned or decorative paper impregnated with a melamine resin; b) spreading particulate fine aluminum oxide (corundum) onto the still wet paper before drying to pre-treat said paper; c) pre-drying or pre-condensing said paper; d) applying a covering layer of fibre material containing melamine resin onto said pre-treated paper; and e)

finally drying the whole, with the covering layer being transparent for viewing of the patterned or decorative paper.

### ***Claim 7***

The above comments regarding ***Lindgren***, ***Veneziale*** and ***Werz*** are equally pertinent to claim 7. In addition, ***Werz*** only mentions "glass fiber fleece" whereas claim 7 recites "cellulose fibres".

### ***Response to Examiner's Response to Argument***

In response to Appellants' contention that the paper overlay sheet of ***Lindgren*** does not constitute a "covering layer of fibre material", the Examiner makes reference to several passages of ***Lindgren*** that refer to  $\alpha$ -cellulose and infers from this that the paper overlay of ***Lindgren*** is "formed by feeding suspended cellulose fibers". There is no mention in these passage of "feeding suspended cellulose fibers". For the Board's convenience, the passages referenced by the Examiner are reproduced below.

Such laminates are often made of two to seven craft paper sheets impregnated with phenol-formaldehyde resin, a monochromatic or patterned decor paper sheet impregnated with melamine-formaldehyde resin and a fine so-called overlay sheet of  $\alpha$ -cellulose impregnated with melamine - formaldehyde resin.

***Lindgren***, column 1, lines 16-22.

A continuous paper is then impregnated with a thermosetting resin such as melamine-formaldehyde resin. At least one side of the continuous paper is coated with 2-20 g/m<sup>2</sup>, preferably 3-12 g/m<sup>2</sup> of small, dry and hard particles evenly distributed over the whole wet surface of resin on the continuous paper. Thereafter the resin is dried and the particle coated, impregnated paper, so-called prepreg is possibly cut to sheets. At least one such sheet or continuous layer is placed as a surface layer on a base layer and bonded thereto.

The base layer can consist of a plurality of conventional dry prepreps of continuous paper or paper sheets respectively, which are not coated with

particles. The resin in the uppermost of these continuous papers or paper sheets possibly consists of a thermosetting resin such as melamine-formaldehyde resin, while the rest of the continuous papers or paper sheets preferably contain a thermosetting resin such as phenol-formaldehyde resin or phenol-urea-formaldehyde resin. The continuous papers or a pile of paper sheets are laminated continuously or discontinuously respectively with the surface layer at a high pressure and an increased temperature.

According to another embodiment of the invention the base layer can consist of particle board or fibre board, whereby the particle coated paper sheet is bonded to the base layer by gluing or laminating under heat and pressure.

The particle coated paper sheet often consists of a so-called overlay paper, preferably of  $\alpha$ -cellulose. However, instead it is also possible to apply the hard particles to the so-called decor paper.

Sometimes you can coat both the overlay paper and the decor paper with particles or use two or more such particle coated overlay papers. It is also possible to put a conventional overlay sheet, which is not coated with particles, over the particle coated sheet or sheets.

**Lindgren**, column 1, line 65 to column 2, line 35.

The hard particles can consist of many different materials. It is especially suitable to use silica, aluminum oxide, and/or silicon carbide.

**Lindgren**, column 2, lines 56-58.

Three of the above prepreg sheets impregnated with phenol-formaldehyde resin (so-called core paper), one decor paper and an overlay paper were placed between two press plates. These sheets were pressed in a conventional multi-opening press at a pressure of 90 kp/cm<sup>2</sup> and a temperature of 145° C. to a homogenous decorative laminate.

The abrasion resistance of the laminate obtained was tested according to the ISO-standard 4586/2 -88 by means of an apparatus called Taber Abraser, model 503.

**Lindgren**, column 4, lines 50-60. None of these passages mention "feeding suspended cellulose fibers".

Regarding Venezia, the Examiner acknowledges the failure of **Veneziale** to mention the use of various fibrous forms in the specific method of Lindgren. The

Examiner contends this if of no moment since **Veneziale** is being applied "to generally recognize the use of a variety of fibrous forms in the manufacture of surface or protective layers to decorative laminates." First it is noted that **Veneziale** is concerned with overlay layers made of fiber glass, whereas **Lindgren** makes no reference to the use of fiber glass as an overlay.

Second, as pointed out in Appellants' main and first reply brief, the skilled person would not have been motivated to modify the methodology of **Lindgren** in view of **Veneziale**. **Veneziale**, filed almost 20 years prior to **Lindgren**, has nothing to do with the problem addressed by **Lindgren**, i.e., the uneven distribution of wear-enhancing hard particles in a decorative laminate. The skilled person would not view **Veneziale** as having anything to add to the teachings of **Lindgren** in respect of the formation of a decorative laminate containing hard particles. **Veneziale** offers no hint that any of the other overlay materials (fiber glass in various forms) mentioned by **Veneziale** could be successfully employed in the process of **Lindgren**. There simply is lacking any suggestion or modification to modify **Lindgren** as contended by the Examiner. The only guidance arises from applicants' specification, and hindsight reliance thereon is clearly improper.

Regarding claim 3, the Examiner has made some observations about the range of particle sizes disclosed by **Lindgren**. Specifically, the Examiner states the skilled person "would have expected the particles to have sizes that were less than and greater than the average value." According to **Lindgren**, the average particle size is about 1-80  $\mu\text{m}$ . The Examiner offers no explanation as to how the skilled person would expect particle sizes of about 125  $\mu\text{m}$  when the maximum average particle size mentioned by **Lindgren** is 80  $\mu\text{m}$ .



Regarding claim 4, it is again reiterated that there is lacking any reasonable way for the skilled person to extrapolate the claimed range from the teachings of **Lindgren**.

Finally, the Examiner summarizes his position by stating that **Lindgren** discloses, *inter alia*, "applying a covering layer of fiber material or overlay sheet containing melamine resin". **Lindgren** includes no such disclosure. **Lindgren** does disclose the use of an overlay sheet. **Lindgren** does not disclose applying a covering layer of fiber material.

### **Conclusion**


For the reasons discussed above and those set forth in Appellants' main brief and first reply brief, the rejections should be reversed.

In the event any fee or additional fee is due in connection with the filing of this paper, the Commissioner is authorized to charge those fees to our Deposit Account No. 18-0988 (under the above Docket Number). In the event an extension of time is needed to make the filing of this paper timely and no separate petition is attached, please consider this a petition for the requisite extension and charge the fee to our Deposit Account No. 18-0988 (under the above Docket Number).

Respectfully submitted,

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Date: November 8, 2005

  
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